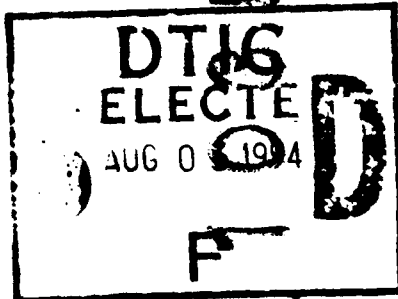




# AERONAUTICS AND SPACE BIBLIOGRAPHY



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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

BY NATIONAL AVIATION EDUCATION COUNCIL

**A BIBLIOGRAPHY**  
of  
**AEROSPACE BOOKS AND TEACHING AIDS**  
for  
**ELEMENTARY SCHOOL PUPILS AND TEACHERS**

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Compiled for  
**Educational Services Branch**  
**National Aeronautics and Space Administration**  
by  
**National Aviation Education Council**

## TABLE OF CONTENTS

	Page
Preface .....	III
<b><i>PART I—BOOKS</i></b>	
Section 1—Space Travel and Space Exploration .....	1
Section 2—Astronomy .....	4
Section 3—How Jets, Rockets, and Satellites Operate .....	6
Section 4—Weather .....	7
Section 5—Aviation and Aeronautics .....	8
<b><i>PART II—REFERENCE MATERIAL</i></b>	
Bibliographies, Dictionaries, etc. ....	9
<b><i>PART III—TEACHING AIDS</i></b>	
Section 1—Pamphlets, booklets, etc. ....	10
Section 2—Films .....	16
Section 3—Filmstrips .....	18
Index of authors .....	22
Index of titles .....	24
Publishers' addresses .....	26

Best Available Copy

## PREFACE

The period immediately following the launching of Russia's Sputnik I in October 1957 saw a tremendous increase in public interest in space flight and a corresponding upsurge in the volume of literature pertaining to it. This bibliography reflects this trend, for with few exceptions, the books listed have been published since December 1957.

Approximately 80 percent of the titles included are concerned with space flight and related subjects. A number of these deal with the science of astronomy, for it is generally accepted that an understanding of the problems of and plans for the exploration of space is based on a knowledge of our solar system and our "neighbors in space." The remaining books listed cover weather phenomena and aviation. The aviation titles, selected for their general interest, are confined to those published in 1960 and the first half of 1961.

Textbooks containing sections and chapters on space flight and aeronautics have not been listed, as almost all recognized social studies or science texts include material on these subjects.

All items included are suitable for use in the elementary school grades. Those for pupils are classified as useful in the primary grades (P), the intermediate grades (I), or the upper elementary

grades (U). Those items without such designations may be considered as appropriate for elementary school teachers.

In addition to books, this bibliography also includes (1) a brief list of bibliographies, dictionaries, and other references; (2) a catalog of some free and inexpensive aerospace teaching aids; and (3) films and filmstrips. In each case requests for free materials and orders for sale items should be sent directly to the publisher or supplier. Addresses of publishers may be found on page 26.

The books and teaching aids appearing in this bibliography comprise a partial listing, and the bibliography should not be considered as complete or exhaustive. The listing of any of the items included does not constitute an endorsement by the National Aeronautics and Space Administration nor by the National Aviation Education Council.

The National Aviation Education Council wishes to acknowledge with thanks the generous assistance and advice received from the American Association for the Advancement of Science and the Education Committee of the American Rocket Society; also the help of the many representatives of publishers, organizations, and firms whose cooperation was solicited and courteously extended.

## PART I—BOOKS

### Section 1—Space Travel and Space Exploration

Books in this section deal with plans for manned and unmanned space exploration, the dangers of space travel, trips to the moon and the planets, the astronauts, space stations, the X-15 rocket ship, rocket and satellite launchings, and research, space science, and the history of rocketry and space flight.

- ADLER, IRVING. **MAN-MADE MOONS.** Day, 128 p., illus., 1958. \$3. Rocket propulsion, space, and what we can learn through earth satellites. (U)
- BEELAND, LEE, and ROBERT WELLS. **SPACE SATELLITE.** Prentice-Hall, 78 p., illus., revised 1960. \$2.95. Facts about man-made moons, including findings of the International Geophysical Year, and rockets and satellites for space research. (U)
- BENDICK, JEANNE. **THE FIRST BOOK OF SPACE TRAVEL.** Watts, 69 p., illus., revised 1960. \$1.95. An updated and revised edition for young children. New material on rockets, missiles, satellites, space-power, and space living conditions has been added. (I)
- BERGAUST, ERIK. **ROCKET AIRCRAFT, USA.** Putnam, 48 p., illus., 1961. \$2.50. The story of the development of rocket-powered aircraft with special emphasis on the X-15. (U)
- BERGAUST, ERIK. **ROCKETS TO THE MOON.** Putnam, 48 p., illus., 1961. \$2.50. Current and future plans for moon probes and for unmanned and manned expeditions to the moon. (U)
- BRANLEY, FRANKLYN M. **A BOOK OF MOON ROCKETS FOR YOU.** Crowell, 64 p., illus., 1959. \$3.50. An explanation of how and why men will go to the moon. (P)
- BRANLEY, FRANKLYN M. **GUIDE TO OUTER SPACE.** Home, 33 p., illus., 1960. 69 cents. Children's major questions about space travel and outer space are answered. (U)
- BURT, OLIVE. **SPACE MONKEY: THE TRUE STORY OF MISS BAKER.** Day, 64 p., illus., 1960. \$2.50. An account of this famous monkey's trip into space and return to earth. (I-U)
- CAIDIN, MARTIN. **X-15: MAN'S DARING FLIGHT INTO SPACE.** Ridge, 64 p., illus., 1961. Paperback, 25 cents. The biography of the experimental rocket airplane—the X-15—and the men who fly it. (U)
- CHESTER, MICHAEL. **LET'S GO TO A ROCKET BASE.** Putnam, 48 p., illus., 1961. \$1.95. Rocket launchings are made understandable to a young child in this description of a rocket base. (I)
- CLASON, CLYDE. **MEN, PLANETS AND STARS.** Putnam, 160 p., illus., 1959. \$2.95. Astronomy, space flight, and the possibility of life on other worlds. (U)
- COGGINS, JACK, and FLETCHER PRATT. **BY SPACE SHIP TO THE MOON.** Random, 58 p., illus., revised 1958. \$1. An imaginary flight to the moon based on scientific facts. (I-U)
- COGGINS, JACK, and FLETCHER PRATT. **ROCKETS, SATELLITES AND SPACE TRAVEL.** Random, 64 p., illus., revised 1958. \$1.95. History of rockets and descriptions of experiments in space travel. A 1958 revision of **ROCKETS, JETS, GUIDED MISSILES AND SPACESHIPS.** Edited by Willy Ley. (U)
- COOMBS, CHARLES. **PROJECT MERCURY.** Morrow, 64 p., illus., 1960. \$2.75. A child's story of America's man-in-space program. (I-U)
- COX, DONALD, and MICHAEL STOIKO. **ROCKETRY THROUGH THE AGES.** Holt, Rinehart & Winston, 41 p., illus., 1959. \$2.95. A history of rocketry with a look to the future. (U)
- COX, DONALD. **STATIONS IN SPACE.** Holt, Rinehart & Winston, 64 p., illus., 1960. \$2.95. Explanations of the known facts about space stations as conceived by leading space scientists. (U)
- CROSBY, ALEXANDER, and NANCY LARRICK. **ROCKETS INTO SPACE.** Random, 82 p., illus., 1959. \$1.95. An illustrated story of rocketry, including explanations of rocket engines and the problems of space travel. (I)
- DEL RAY, LESTER. **SPACE FLIGHT.** Golden, 56 p., illus., 1959. \$2. Explains the projects that are under way for the exploration of space. (I-U)
- DEL RAY, LESTER. **ROCKETS THROUGH SPACE.** Holt, Rinehart & Winston, 118 p., illus., 1960. \$3.95. An overview of space science. Available also in paper covers from Fawcett, 50 cents. (U)
- EGAN, PHILIP. **SPACE FOR EVERYONE.** Rand McNally, 72 p., illus., 1961. \$2.95. An overview of the members of our solar system, stars, and galaxies, with an explanation of rocket and jet propulsion, artificial satellites, and space vehicle launching procedures. (U)

- FREEMAN, MAE, and IRA FREEMAN. **YOU WILL GO TO THE MOON.** Random, 54 p., illus., 1959. \$1.95. An illustrated, simple explanation of how the journey to the moon will be made. (P)
- GREENE, CARLA. **I WANT TO BE A SPACE PILOT.** Children's, 32 p., illus., 1961. \$2. Kip, who wants to be a space pilot, learns about gravity, escape velocity, the training of an astronaut, the moon, and outer space. (P)
- HAGGERTY, JAMES J., JR. **PROJECT MERCURY.** Scholastic, 63 p., illus., 1961. Paperback, 25 cents. The exciting story of the *Project Mercury* astronauts and space vehicle. (U)
- HAGGERTY, JAMES J. JR., and JOHN H. WOODBURN. **SPACE-CRAFT.** Scholastic, 128 p., 1961. Paperback, 50 cents. A résumé with explanations of the spacecraft program of the National Aeronautics and Space Administration—sounding probes, lunar craft, and interplanetary space flight. Suggested student activities are included. (U)
- HOLSAERT, EUNICE, and RONNI SOLBERT. **OUTER SPACE.** Holt, Rinehart & Winston, 48 p., illus., 1959. \$2.50. A beginning reader on the problems and possibilities of space travel. (P)
- HUTCHINSON, WILLIAM M., and KURT SPIELBERG. **SPACE TRAVEL.** Maxton, 28 p., illus., 1958. 69 cents. The laws of motion, rocket propulsion, artificial satellites, and man in space are explained briefly in this well illustrated book. (P)
- HYDE, MARGARET O. **EXPLORING EARTH AND SPACE.** Whittlesey House, 157 p., illus., revised 1959. \$3. Rocket and satellite research. (U)
- HYDE, MARGARET O. **OFF INTO SPACE!** Whittlesey House, 63 p., illus., 1959. \$2.50. Simple explanations and illustrations of space travel facts. (I)
- KAY, TERENCE. **SPACE VOLUNTEERS.** Harper, 136 p., illus., 1960. \$2.50. A book about the brave men who are engaged in experiments to determine how man will actually fare in outer space. Includes the story of the *Project Mercury* astronauts. (U)
- KING, FRED M. **WHAT IS GRAVITY.** Benefic, 48 p., illus., 1960. \$1.80. Gravity and its relation to our solar system are explained in simple terms. (I-U)
- LAUBER, PATRICIA. **THE QUEST OF GALILEO.** Garden City, 56 p., illus., 1959. \$2.50. Galileo's contribution to science, and the relation of his discoveries to modern space exploration and astronomy. (I-U)
- LAWRENCE, MORTIMER. **THE ROCKETS' RED GLARE.** Coward-McCann, 118 p., illus., 1960. \$2.75. Explains what our scientists are doing to overcome the dangers of space exploration. (U)
- LEAVITT, WILLIAM, and others. **THE SPACE FRONTIER.** National Aviation Education Council, 32 p., illus., revised 1961. Paperback, 50 cents. A description of space, and a summary of man's efforts to explore space. An extensive glossary and a log of U.S. and Soviet satellites and space probes are included. (U)
- LEWELLEN, JOHN. **YOU AND SPACE TRAVEL.** Children's 60 p., illus., revised 1958. \$2. Traces actual progress made toward space travel from the first airplane to rocketships. (I)
- LEY, WILLY. **MAN IN SPACE.** Singer, 48 p., illus., 1959. Paperback, 60 cents. The problems and dangers of man's first step into space. Walt Disney Tomorrowland Adventure Series. (U)
- LEY, WILLY. **MARS AND BEYOND.** Singer, 48 p., illus., 1959. Paperback, 60 cents. How man may someday explore Mars, and what he may find there. Walt Disney Tomorrowland Adventure Series. (U)
- LEY, WILLY. **SPACE STATIONS.** Guild, 44 p., illus., 1958. \$1. Discusses "the largest single step in the conquest of space"—manned space stations. (U)
- LEY, WILLY. **SPACE TRAVEL.** Guild, 44 p., illus., 1958. \$1. Speculations on space flight conditions. (U)
- LEY, WILLY. **TOMORROW THE MOON.** Singer, 48 p., illus., 1959. Paperback, 60 cents. A description of today's views on a trip to the moon. Walt Disney Tomorrowland Adventure Series. (U)
- MARSHACK, ALEXANDER. **THE WORLD IN SPACE.** Nelson, 176 p., illus., 1958. \$4.95. Available in paper covers from Dell, 35 cents. The scientific facts behind today's space exploration headlines, and a discussion of the accomplishments of the International Geophysical Year. (U)
- MAX, JULIAN. **SHOW ME THE WORLD OF SPACE TRAVEL.** Pennington, 64 p., illus., 1959. \$1.95. Astronauts and their work, principles of rocketry, space stations, planetary exploration, with a description of each planet. (I)
- MOFFAT, SAMUEL, and JOSHUA LEDERBERG. **SPACE BIOLOGY** (tentative title). Scholastic, 128 p., illus. Paperback, 50 cents. Available in 1962. How the biological sciences are contributing to our knowledge of space. Life on other planets and the problems of contaminating our neighbors in space with earth-derived organisms are discussed. (U)
- MYRUS, DON. **THE ASTRONAUTS: THE TRUE STORY OF MAN'S GREATEST ADVENTURE IN OUTER SPACE.** Grosset, 96 p., illus., 1961. \$1.95. Available also from Noble in special binding for schools and libraries, \$3.67. A well-illustrated account of the training of our seven astronauts. (U)
- NEPHEW, WILLIAM, and MICHAEL CHESTER. **BEYOND MARS.** Putnam, 72 p., illus., 1960. \$2.75. Scientists speculate on the possibilities of exploring the giant planets of Saturn, Jupiter, Uranus, and Neptune. (U)
- NEPHEW, WILLIAM, and MICHAEL CHESTER. **MOON BASE.** Putnam, 72 p., illus., 1959. \$2.75. Available also in paper covers from Scholastic at 25 cents. Speculation on building and operating a moon base as scientists think it may be done. (I-U)
- NEPHEW, WILLIAM, and MICHAEL CHESTER. **MOON TRIP.** Putnam, 63 p., illus., 1958. \$2.50. Available also in paper covers from Scholastic at 25 cents. How man will reach the moon and what he may find there. Rocket propulsion is explained. (I-U)

- NEPHEW, WILLIAM, and MICHAEL CHESTER. PLANET TRIP.** Putnam, 72 p., illus., 1960. \$2.75. How man may some day visit our neighbors in space. (I-U)
- NEWELL, HOMER E. SPACE BOOK FOR YOUNG PEOPLE.** Whittlesey, 114 p., illus., revised 1960. \$2.95. An explanation of earth and its position in the universe, including a presentation of facts about rockets, space, and space travel. (U)
- NEWELL, HOMER E. WINDOW IN THE SKY.** McGraw-Hill, 116 p., illus., 1959. \$2.75. The story of our upper atmosphere—its composition and interesting phenomena. (U)
- ODISHAW, HUGH. SPACE SCIENCE SERVES MAN** (tentative title). Scholastic, 128 p., illus. Paperback, 50 cents. Available in 1962. Discusses the impact of space research on society and the changes that will result from information gleaned from satellite and space probes. (U)
- PARKER, BERTHA MORRIS. SATELLITES AND SPACE TRAVEL.** Row Peterson, 36 p., illus., 1961. Paperback, 52 cents. Why satellites remain in orbit, the meaning of escape velocity, *Project Mercury*, space stations, and the training of our astronauts. (U)
- PODENDORF, ILLA. THE TRUE BOOK OF SPACE.** Children's, 48 p., illus., 1959. \$2.00. This book introduces the child to the fascinating and basic concepts of space. (P)
- ROSEN, SIDNEY. GALILEO AND THE MAGIC NUMBERS.** Little Brown, 224 p., illus., 1958. \$3.50. The biography of a 16th-century scientist and mathematician, and his struggles to lay the foundations of modern space science. (U)
- RUCHLIS, HY. ORBIT.** Harper, 147 p., illus., 1958. \$2.75. Simple explanations of Newton's laws of motion and laws of gravity, and how they relate to space flight. (U)
- SCHNEIDER, LEO. SPACE IN YOUR FUTURE.** Harcourt, 255 p., illus., 1960. \$3.75. Clear and concise descriptions of our physical world, the universe around us, and the strides we are making in space exploration. (U)
- SHELTON, WILLIAM ROY. COUNTDOWN: THE STORY OF CAPE CANAVERAL.** Little Brown, 185 p., illus., 1960. \$3.50. The great rockets, and details of life at Canaveral. (U)
- STEVENS, ROBLEY D. SPACE TRAVEL GUIDEBOOK.** Wilde, 148 p., illus., 1961. \$4.95. An illustrated history of space exploration. (U)
- SUTHERLAND, LUCILLE, and KURT SPIELBERG. SPACE TRAVEL.** Webster, 32 p., illus., 1958. Paperback, 60 cents. A picture story of the world of rockets, satellites, and missiles. (I)
- TANNENBAUM, HAROLD E., and NATHAN STILLMAN. EARTH AND SPACE.** Webster, 24 p., illus., 1960. Paperback, 48 cents. Basic facts explaining gravity, the earth's place in our solar system, the moon, and man-made satellites. (P)
- THRONEBURG, JAMES. MAN ON THE MOON: OUR FUTURE IN SPACE.** Knopf, 64 p., illus., 1961. \$2.75. The exciting story of the moon, from ancient myths to what we may find when we land there. (I)
- WELLS, ROBERT. WHAT DOES AN ASTRONAUT DO?** Dodd Mead, 64 p., illus., 1961. \$2.50. The probable responsibilities and tasks of astronauts of the future. (U)
- WELMERS, EVERETT T. THRUST INTO SPACE** (tentative title). Scholastic, 128 p., illus. Paperback, 50 cents. Available in 1962. Discusses launching vehicles and propulsion systems for planetary and interplanetary space flight. (U)
- YATES, RAYMOND F., and M. E. RUSSELL. SPACE ROCKETS AND MISSILES.** Harper, 329 p., illus., 1960. \$3.50. A complete picture in words and photographs of the rockets and missiles in today's and tomorrow's news. Glossaries and a table of satellite launchings and space probes are included. (U)

## Section 2—Astronomy

Books in this section deal with facts and theories about our solar system, the sun, planets, comets, meteorites, the universe, stars, constellations, and galaxies; telescopes, the computation of time as it relates to astronomy, star maps and charts, and the history of astronomy.

- ALDER, IRVING. **THE SUN AND ITS FAMILY.** Day, 128 p., illus., 1958. \$3. The history of astronomy as it relates to the sun and our solar system. (U)
- ASIMOV, ISAAC. **THE CLOCK WE LIVE ON.** Abelard-Schuman, 160 p., illus., 1959. \$3. Relates the measurement of time to the solar system and discusses the evolution of the calendar. (U)
- BAKER, RACHEL, and JOANNA BAKER MERLEN. **AMERICA'S FIRST WOMAN ASTRONOMER: MARIA MITCHELL.** Messner, 186 p., 1960. \$2.95. The life story of a famous woman astronomer. (U)
- BRANLEY, FRANKLYN M. **THE MOON: EARTH'S NATURAL SATELLITE.** Crowell, 110 p., illus., 1960. \$3.50. An explanation of moon travel, eclipses, motion, orbits, mass, density, atmosphere, surface features, and temperatures of the moon. (U)
- BRANLEY, FRANKLYN M. **THE MOON SEEMS TO CHANGE.** Crowell, 114 p., illus., 1960. \$2.50. A Let's-Read-and-Find-Out book about how the moon looks to us and why. (P)
- BRANLEY, FRANKLYN M. **THE NINE PLANETS: EXPLORING OUR UNIVERSE.** Crowell, 77 p., illus., 1958. \$3.50. Detailed descriptions of the planets and their relation to our solar system. Discoveries of astronomers are emphasized in presenting scientific evidence for a number of theories. (U)
- CHAMBERLAIN, JOSEPH M., and THOMAS D. NICHOLSON. **PLANETS, STARS, AND SPACE.** Creative, 216 p., illus., 1957. \$7.75. An illustrated, nontechnical explanation of the earth, planets, stars, and the universe. Prepared in cooperation with the American Museum of Natural History. (U)
- COX, DON, and MICHAEL STOIKO. **MAN IN THE UNIVERSE.** Holt, Rinehart & Winston, 64 p., illus., 1959. \$2.95. Explanation of the solar system, with charts. (U)
- CROSBY, PHOEBE. **JUNIOR SCIENCE BOOK OF STARS.** Garrard, 64 p., illus., 1960. \$2.25. An easy-to-read, exciting story of what scientists know about the stars, constellations, planets, the moon, and the Milky Way. (I)
- FREEMAN, MAE, and IRA FREEMAN. **THE SUN, THE MOON, AND THE STARS.** Random, 83 p., illus., 1959. \$1.95. A basic explanation of the universe, with simple experiments. (I)
- GALLANT, ROY A. **EXPLORING THE PLANETS.** Garden City, 63 p., illus., 1958. \$2.95. An illustrated description of the planets of our solar system. (I)
- GALLANT, ROY. **EXPLORING THE SUN.** Garden City, 56 p., illus., 1958. \$2.50. The story of the growth of man's knowledge of the sun. (I-U)
- GREY, VIVIAN. **THE FIRST BOOK OF ASTRONOMY.** Watts, 68 p., illus., 1959. \$1.95. Information about our solar system; earthly phenomena such as day and night, the seasons and tides; heavenly phenomena such as eclipses, star clusters and novae; as well as comets, galaxies, and meteorites. (I)
- HOSS, NORMAN. **THE HOW AND WHY WONDER BOOK OF STARS.** Grosset, 48 p., illus., 1960. \$2.77. Available to schools and libraries from Noble. Discoveries of astronomers, and explanations of meteors, comets, galaxies, and the planets. Directions for making a Star Chart are included. (U)
- HYNEK, ALLEN, and NORMAN ANDERSON. **INTRODUCTION TO SPACE** (tentative title). Scholastic, 128 p., illus. Paperback, 50 cents. Available in 1962. Discusses the nature of the universe; astronomy and cosmology. (U)
- JOHNSON, GAYLORD. **THE STORY OF PLANETS, SPACE AND STARS.** Harvey, 153 p., illus., 1959. \$2.95. A tour of the universe describing the phenomena of outer space and including aids for identifying the planets and stars. (U)
- LAUBER, PATRICIA. **ALL ABOUT THE PLANETS.** Random, 139 p., illus., 1960. \$1.95. What astronomers have learned and hope to learn about our solar system. (I-U)
- MALONEY, TERRY. **THE STORY OF THE STARS.** Sterling, 48 p., illus., 1961. \$2.50. An introduction to the universe—our solar system, our galaxy, and other galaxies. Many interesting illustrated analogies will help build concepts of size and distance. Includes references to the Van Allen radiation belts and zodiacal light observation of 1960. (I-U)
- MAY, JULIAN. **SHOW ME THE WORLD OF ASTRONOMY.** Pennington, 64 p., illus., 1959. \$1.95. The constellations, sun, moon, and planets for young astronomers, with a description of the work of astronomers. (I)



- MOORE, PATRICK. THE BOYS' BOOK OF ASTRONOMY.** Roy, 143 p., illus., 1958. \$3. A complete A B C of astronomy. (U)
- MUNCH, THEODORE W. WHAT IS A SOLAR SYSTEM.** Benefic, 48 p., illus., 1959. \$1.80. Some of the wonders of the solar system are explained in simple terms. (I)
- OLCOTT, W. T., and R. and M. MAYALL. FIELD BOOK OF THE SKIES.** Putnam, 482 p., illus., revised 1954. \$5. A completely revised edition of the book which has been the standard work of its kind since its first appearance. (U)
- PAGE, LOU WILLIAMS. A DIPPER FULL OF STARS.** Follett, 223 p., illus., revised 1959. \$2.95. An introduction and guide to the sky for young people. (U)
- PARKER, BERTHA MORRIS. THE SKY ABOVE US.** Row Peterson, 36 p., illus., 1958. Paperback, 48 cents. A description of the sun, planets, stars, constellations, comets, and meteors, showing their relationships in space. (U)
- POSIN, DANIEL Q. WHAT IS A STAR.** Benefic, 48 p., illus., 1961. \$1.80. Stars explained to children. (I-U)
- REED, W. MAXWELL. THE STARS FOR SAM.** Harcourt, 179 p., illus., revised 1960. \$4.95. An introduction to astronomy, including our solar system, the universe and its galaxies, and space exploration today. (U)
- SCHLOAT, G. WARREN. ANDY'S WONDERFUL TELESCOPE.** Scribner, 48 p., illus., 1958. \$2.95. Illustrations explaining the principles of telescopes. The solar system and constellations are introduced. (I)
- SHANE, HAROLD. THE SOLAR SYSTEM.** Merrill, 32 p., illus., 1958. Paperback, 28 cents. Useful reference material. (I)
- STERNIG, J. BEGINNER'S BOOK OF ASTRONOMY.** McBride, 162 p., illus., 1958. \$3.75. A "first book" explaining in simple terms our solar system, the universe and galaxies, and how they are related to space travel. (U)
- TANNENBAUM, BEULAH, and MYRA STILLMAN. UNDERSTANDING TIME.** Whittlesey, 143 p., illus., 1958. \$3. An explanation of all the major devices for recording time, and their relation to astronomy. (U)
- TELLANDER, MARIAN. SPACE.** Follett, 32 p., illus., 1960. \$1. An introduction to our solar system and the universe. (P)
- WHITE, W. B. NEIGHBORS IN SPACE.** Rand McNally, 64 p., illus., 1958. \$2. A guide to the heavens, with excellent star maps. (I)
- WYLER, ROSE, and GERALD AMES. THE GIANT GOLDEN BOOK OF ASTRONOMY.** Golden, 97 p., illus., revised 1960. \$5.32. A child's introduction to space, and its relation to rocketry and space flight. (I-U)
- ZIM, HERBERT S. SHOOTING STARS.** Morrow, 64 p., illus., 1958. \$2.75. Known facts and theories about meteors are explained. (I)
- ZIM, HERBERT S. THE UNIVERSE.** Morrow, 64 p., illus., 1961. \$2.75. A child's history of our knowledge of the universe. (I)

### Section 3—How Jets, Rockets, and Satellites Operate

Books in this section explain the operation of jet and rocket engines, missiles, and satellites; and rocket safety measures.

- ASIMOV, ISAAC. SATELLITES IN OUTER SPACE.** Random, 79 p., illus., 1960. \$1.95. An easy-to-read book explaining earth satellites and what we have learned from them. (I-U)
- BRANLEY, FRANKLYN M. A BOOK OF SATELLITES FOR YOU.** Crowell, 48 p., illus., 1959. \$3.50. Earth satellites and their purposes are explained to very young readers. (P)
- DIETZ, DAVID. ALL ABOUT SATELLITES AND SPACE SHIPS.** Random, 164 p., illus., 1958. \$1.95. Available from Hale in special library binding at \$3.80. Answers to many questions about the operation of rockets, satellites, and spaceships. (I)
- GOTTLIEB, WILLIAM. JETS AND ROCKETS AND HOW THEY WORK.** Garden City, 55 p., illus., 1959. \$2.95. The inner workings of jet engines and rocket engines, with simple experiments. (I-U)
- KNIGHT, CLAYTON. THE HOW AND WHY WONDER BOOK OF ROCKETS AND MISSILES.** Grosset, 48 p., illus., 1960. \$2.77. Available to schools and libraries from Noble. Easily understood story of rockets and missiles, explaining their uses. (I-U)
- KNIGHT, CLAYTON. ROCKETS, MISSILES, AND SATELLITES.** Grosset, 61 p., illus., 1958. \$1.95. A picture book with brief explanations. (U)
- MUNCH, THEODORE W. WHAT IS A ROCKET.** Benefic, 48 p., illus., 1959. \$1.80. Simple explanations of rocket propulsion, rocket construction, guidance, etc. (I)
- NEURATH, MARIE. MAN-MADE MOONS.** Lothrop, 36 p., illus., 1960. \$2. Answers to children's questions about satellites and how they work. (I)
- NEURATH, MARIE. ROCKETS AND JETS.** Lothrop, 36 p., illus., revised 1960. \$2. Text and diagrams that explain at a glance how rockets and jet planes work. (I-U)
- NEWELL, HOMER E. GUIDE TO ROCKETS, MISSILES, AND SATELLITES.** Whittlesey House, 54 p., illus., 1958. \$2.50. An explanation of rocket and missile research, including an alphabetical list and photographs of rockets, satellites, and missiles of today. (U)
- PARKER, BERTHA MORRIS. ROCKETS AND MISSILES.** Row Peterson, 36 p., illus., 1961. Paperback, 52 cents. How rockets and missiles work, the distinction between the two, their structures, and kinds of propellants are explained. Includes sections on jet propulsion and missile guidance, and the uses of rockets in research. (U)
- PRATT, FLETCHER. ALL ABOUT ROCKETS AND JETS.** Random, 135 p., illus., revised 1958. \$1.95. Available from Hale in special library binding, \$3.80. An explanation of rocket and jet propulsion and their applications to missiles and space vehicles. (I)
- SHARP, ELIZABETH N. THE SCIENCE BOOK-LAB OF JET ENGINES.** Basic, 48 p., illus., 1961. \$3.95. How jet engines were developed, how they are built, and how they work. An assemble-it-yourself model of a jet engine is included. (U)
- TANNENBAUM, HAROLD E., and NATHAN STILLMAN. ROCKETS AND HOW THEY WORK.** Webster, 24 p., illus., 1960. Paperback, 48 cents. Information to answer many questions children have about rockets. Rocket shapes and fuels are explained, including the principle of thrust. (P)
- TAYLOR, JOHN W. R. ROCKETS AND SATELLITES WORK LIKE THIS.** Roy, 71 p., illus., 1959. \$2.75. Explains rocket propulsion, guidance systems, and the problems of placing satellites in orbit. (U)

## Section 4—Weather

Books in this section cover the nature and causes of weather phenomena, methods of weather forecasting, cloud formations, and the history of meteorology.

- ADLER, IRVING. **WEATHER IN YOUR LIFE.** Day, 126 p., illus., 1959. \$3. How we study, forecast, outwit, and even change the weather. (U)
- BARR, JENE. **DAN THE WEATHERMAN.** Albert Whitman, 32 p., illus., 1958. \$1.25. An easy-to-read book which describes weather, the duties of the weatherman, and how weather affects people. (P)
- BONSALL, GEORGE. **THE HOW AND WHY WONDER BOOK OF WEATHER.** Grosset, 48 p., illus., 1960. \$2.77. Available to schools and libraries from Noble. Explains how air, sun, and water intermingle in a thousand different ways to produce weather patterns. Simple experiments are included. (I-U)
- CAMPRELL, ETHEL M. **THE WIND—NATURE'S GREAT VOICE.** Denison, 45 p., illus., 1959. \$3. Explanations of the movements of the atmosphere. (U)
- FORRESTER, FRANK. **EXPLORING THE AIR OCEAN.** Putnam, 70 p., illus., 1960. \$2.75. The "whats," "whys," and "hows" of weather. (I-U)
- GIBSON, GERTRUDE H. **ABOUT OUR WEATHER.** Melmont, 31 p., illus., 1960. \$2.50. The causes of wind, rain, thunder, lightning, snow, and hail are explained to young children. Simple experiments are included. (P)
- GOUDEY, ALICE E. **THE DAY WE SAW THE SUN COME UP.** Scribner, 30 p., 1961. \$2.95. The sun and its effects on our day. Scientific facts for young children. (P)
- HITTE, KATHRYN. **HURRICANES, TORNADOES, AND BLIZZARDS.** Random, 82 p., illus., 1960. \$1.95. How scientists are learning about severe weather, and how rockets and satellites help gather facts. (I)
- LEY, WILLY. **MAN AND WEATHER SATELLITES.** Singer, 48 p., illus., 1959. Paperback, 60 cents. The story of man and the weather, what he has learned about it, and how he hopes to learn even more through the use of satellites. Walt Disney Tomorrowland Adventure Series. (U)
- MCGRATH, THOMAS. **CLOUDS.** Melmont, 31 p., illus., 1959. \$2.50. Some of the most common cloud formations are discussed and illustrated. (P)
- NEURATH, MARIE. **BETWEEN EARTH AND SKY.** Sterling, 36 p., illus., 1958. \$2.50. Basic explanations of clouds, storms, meteorites, and the atmosphere. (I-U)
- SPAR, JEROME. **THE WAY OF THE WEATHER.** Creative, 224 p., illus., 1957. \$7.75. An illustrated overview of weather phenomena and climate. Prepared in cooperation with The American Museum of Natural History. (U)
- SYROCKI, B. JOHN. **WHAT IS WEATHER.** Benefic, 48 p., illus., 1960. \$1.80. Weather phenomena is explained in simple terms. (I-U)
- THOMAS, A. ELEANOR. **WEATHER.** Merrill, 32 p., illus., 1958. Paperback, 28 cents. Useful reference material. (I)
- WOLFE, LOUIS. **LET'S GO TO A WEATHER STATION.** Putnam, 47 p., illus., 1959. \$1.95. How a weather forecaster works, and the equipment he uses. (I-U)
- WOLFE, LOUIS. **PROBING THE ATMOSPHERE: THE STORY OF METEOROLOGY.** Putnam, 160 p., illus., 1961. \$2.95. The background and overview of the young science of meteorology explained to children. (I-U)

## Section 5—Aviation and Aeronautics

Books in this section are concerned with aircraft, balloons, principles of flight, helicopters, and aviation history.

- BERNARDO, JAMES V. **AVIATION IN THE MODERN WORLD.** Dutton, 352 p., 1960. \$5.95. A comprehensive survey of the airplane and its social, economic, and political impacts and implications. Includes discussions of the principles of flight, the mechanics and art of flying, weather, space flight, history of flight, and career opportunities. (U)
- COOKE, DAVID C. **FLIGHTS THAT MADE HISTORY.** Putnam, 70 p., illus., 1961. \$2.50. A picture story of 37 history-making flights, from the first Wright brothers' flight to the B-52 world-circling nonstop flight in 1957. (U)
- COOKE, DAVID C. **JET AND ROCKET PLANES THAT MADE HISTORY.** Putnam, 72 p., illus., 1961. \$2.50. Photographs and comments concerning manned jet and rocket aircraft from the first rocket flights in 1929 to the X-15 research rocket plane. (I-U)
- FERAVOLO, Rocco V. **JUNIOR SCIENCE BOOK OF FLYING.** Garrard, 64 p., illus., 1960. \$2.25. Answers to many questions about flying, including simple experiments to explain the fundamentals of flight. (I)
- FLOHERY, JOHN J., and MIKE McGRADY. **WHIRLING WINGS.** Lippincott, 156 p., illus., 1961. \$3. The story of the helicopter and the men responsible for its invention and development. (U)
- GOTTLIER, WILLIAM. **AIRCRAFT AND HOW THEY WORK.** Garden City, 64 p., illus., 1960. \$2.95. Step-by-step explanations of how aircraft fly, using simple demonstrations. (I-U)
- HIGHLAND, HAROLD. **THE HOW AND WHY WONDER BOOK OF FLIGHT.** Grosset, 48 p., illus., 1961. Paperback, 50 cents. Available from Noble in special prebound binding for schools and libraries, \$3.07. An illustrated explanation of man's achievements in flight—from the earliest attempts in balloons to the X-15 rocket ship. (I-U)
- HYDE, WAYNE. **WHAT DOES A PARACHUTIST DO?** Dodd Mead, 64 p., illus., 1960. \$2.50. An illustrated account of the training and variety of work of the men who drop to earth by parachute. (U)
- POOLE, LYNN, and GRAY POOLE. **BALLOONS FLY HIGH.** Whittlesey House, 71 p., illus., 1961. \$2.75. The history of ballooning from the 18th century to the space age. (U)
- SCHNEIDER, LEO, and MAURICE U. AMES. **WINGS IN YOUR FUTURE.** Harcourt, 146 p., illus., revised 1960. \$2.95. An explanation of the principles of flight, including information on jets and space flight, with suggested experiments and explanatory diagrams. (U)
- TANNENBAUM, HAROLD E., and NATHAN STILLMAN. **AIRPLANES AND HOW THEY FLY.** Webster, 24 p., illus., 1960. Paperback, 48 cents. How planes fly explained in terms young children will understand. (P)
- THOMAS, HENRY. **THE WRIGHT BROTHERS.** Putnam, 120 p., illus., 1960. \$2.50. An easy-to-read biography of the famous brothers who successfully launched the first powered flying machine. (U)
- U.S. AIRCRAFT, MISSILES, AND SPACECRAFT. National Aviation Education Council, 156 p., illus., 1961. Paperback, \$1.50. An annual pictorial review of all aircraft, missiles, rockets, and space vehicles in production or in the testing stages. Includes three-view drawings, specifications, and performance ratings. Yearbooks for 1957 through 1960 are also available. Write for prices. (I-U)

## PART II—REFERENCE MATERIALS

### *Bibliographies*

**THE AAAS SCIENCE BOOK LIST.** Hilary J. Deason, editor. American Association for the Advancement of Science, 140 p., 1959. Paperback, \$1. An annotated bibliography designed as a "guide to recreational and collateral reading, and to basic reference works in the sciences and mathematics for junior and senior high school students, college undergraduates, and nonspecialist adults." Many titles on astronomy, space flight, and meteorology are included.

**AN INEXPENSIVE SCIENCE LIBRARY.** Hilary J. Deason and Robert W. Lynn. American Association for the Advancement of Science, 70 pages, 1960. Paperback, 25 cents. A selected annotated list of paperbound science and mathematics books for junior and senior high school pupils, college students and adults. Many aviation, astronomy, meteorology, and space titles are included.

**THE TRAVELING ELEMENTARY SCHOOL SCIENCE LIBRARY.** Hilary J. Deason and others. American Association for the Advancement of Science, 47 p., 1959. Paperback, 25 cents. An annotated list of books included in the traveling Science Library Program of the National Science Foundation. Many aviation, astronomy, meteorology, and space titles are included.

### *Dictionaries*

**AERONAUTICAL DICTIONARY.** Frank Davis Adams, editor. Superintendent of Documents, U.S. Government Printing Office, Catalog NAS 1.8:Ae8. 199 p., illus., 1959. \$1.75. A publication of the National Aeronautics and Space Administration listing definitions of common words and terms gathered from an extensive search of aeronautical literature. Cross-referenced.

**AVIATION AND SPACE DICTIONARY.** Ernest J. Gentle and Charles E. Chapel, editors. Aero, 450 p., illus., revised 1961. \$10. Comprehensive definitions of more than 10,000 aerospace terms.

**WHO'S WHO IN WORLD AVIATION AND ASTRONAUTICS.** American Aviation, 497 p., 1958. \$12.50. Supply limited. More than 2,400 entries giving information about living men and women contributing to aviation and astronautics today.

**AERONAUTICS AND ASTRONAUTICS 1915-60.** Eugene M. Emme. Superintendent of Documents, U.S. Government Printing Office, 240 p., 1961. \$1.75. A chronological list of achievements in scientific research and engineering development which lie behind the major milestones in man's conquest of the air and space. Appendices include a log of earth satellite and space probes through 1960, world airplane records, balloon flights, and recipients of major aeronautics and astronautics awards and honors over the years.

## PART III—TEACHING AIDS

### Section 1—Pamphlets, Booklets, etc.

Academy of Model Aeronautics, 1025 Connecticut Ave. NW., Washington 6, D.C.

**MODEL AIRPLANE CLUB KIT.** Includes the *Model Airplane Club and Chapter Manual*, with organizational procedures, suggested activities, and sample constitution. Related materials also included. 25 cents. (U)

**OFFICIAL MODEL AIRCRAFT REGULATIONS.** Detailed safety and competition model flying rules for gliders, rubber-powered airplanes, gas-powered airplanes, and rocket-powered airplanes. Rules for all the subdivisions of these categories are included. 25 cents. (U)

Adler Planetarium, Chicago 5, Ill.

Booklets prepared by the staff of the Adler Planetarium:

No. 2—**STARS OF SUMMER.** Simple star maps with brief descriptions. 10 cents. (U)

No. 4—**STARS OF WINTER.** Simple star maps with brief descriptions. 10 cents. (U)

No. 9—**WHAT ARE STARS?** Explains how astronomers have gathered knowledge of the stars and what they have found. 10 cents. (U)

No. 13—**THE STORY OF THE PLANETS.** A brief history of man's knowledge of the planets. 10 cents. (U)

No. 20—**REPORT PREPARED BY THE COMMITTEE OF THE AMERICAN ASTRONOMICAL SOCIETY ON PREFERRED SPELLINGS AND PRONUNCIATIONS.** Pronunciations and definitions of the names of constellations, and pronunciations and equivalents of 50 important special star names. 10 cents. (U)

Lists of books, photographs, observing aids, navigational equipment and telescope mirror kits available through the Adler Planetarium. Free. (U)

Aerospace Industries Association, 610 Shoreham Building, Washington 5, D.C.

**AEROSPACE.** An official publication of the Aerospace Industries Association giving news of developments in the aerospace industry. Published monthly. Suitable for teachers. Free.

**SPACE—CHALLENGE AND PROMISE.** An illustrated booklet discussing briefly the history of space research, the reasons for exploring space, the next steps in space exploration, and the role of the aerospace industry. Free. (U)

American Museum-Hayden Planetarium, 81st St. and Central Park West, New York 24, N.Y.

**KNOW YOUR STARS AND PLANETS.** Flashcard set covering constellations, major stars, planets, and moon features, and many space age facts. \$1.25. (I-U)

**THE BOOK CORNER.** A leaflet listing books on astronomy navigation, and meteorology, plus sources of charts, maps, celestial globes, and astronomical gadgets. Free. (U)

American Rocket Society, 500 Fifth Ave., New York 36, N.Y.

**AN OPEN LETTER TO AMATEUR ROCKETEERS.** A leaflet cautioning amateur rocketeers on the hazards of rocket firing and experimentation. Free. (U)

Board of Education, City of New York, Publications Sales Office, 110 Livingston St., Brooklyn, N.Y.

**NEW YORK CITY AIR AGE INSTITUTE SOURCE BOOK.** (1961) A 71-page booklet describing New York City's air age education program and a list of free and inexpensive materials, audiovisual aids, and books for classroom use. 50 cents.

Civil Air Patrol, National Headquarters, Ellington Air Force Base, Tex.

**AEROSPACE AGE SCIENCE.** A collection of simple-equipment experiments and activities. Free. (U)

**EDUCATION-AVIATION-AND THE SPACE AGE.** A handbook for the teacher who wishes to bring aerospace information into the classroom. Provides an easy-to-understand overview of air and space vehicles; the uses and effects of aviation; and various methods of solving the curricular problem. 88 p., \$1.50.

F. E. Compton & Co., 1000 North Dearborn St., Chicago 10, Ill.

Teaching units. Four- and eight-page leaflets with the following titles: **AIRPLANES** (primary), **STUDYING THE SKY** (upper), **HOW WEATHER AFFECTS OUR DAILY LIVES** (upper), and **STUDYING SPACE BEYOND THE EARTH** (upper). Each leaflet provides suggestions for introducing the unit, subject matter outlines, understandings, objectives, activities, evaluations, and a bibliography. Single copies sent free as long as a limited supply lasts.

George F. Cram Co., 730 East Washington St., Indianapolis 6, Ind.

**OUTER SPACE AND WORLD GLOBE HANDBOOK.** Explanations of outer space, man's activities in the space age, the earth's place in the solar system, the measurement of time, the sun and the planets. \$1. (U)

Denoyer Geppert Co., 5235 Ravenswood Ave., Chicago 40, Ill.

**SIGNPOST TO THE STARS.** No. SS211. A 32-page booklet for the beginning astronomer including 20 star maps. 50 cents. (U)

**STARS AT A GLANCE.** No. SG11. A pocket guide, 5" x 7", containing monthly charts of the heavens. 75 cents. (U)

Edmund Scientific Co., 101 East Gloucester Pike, Barrington, N.J.

**STAR AND SATELLITE PATH FINDER.** No. S9227. A rotating chart that shows over 500 stars and their relationships at any selected day and hour. With instruction manual. 50 cents. (U)

Catalog of surplus lens, mirrors, telescope parts, etc. Free. (U)

**ASTRONOMY AND YOU.** A cartoon-type booklet in color introducing the science of astronomy. Free in quantity to teachers. Request on school stationery. (I-U)

**INFLATABLE CELESTIAL GLOBE.** No. S60166. 12" globe of Vinyl shows the stars in the major constellations to the fourth magnitude. Traditional constellation figures are imprinted on the globe. \$1.40. (I-U)

**MOONBALL.** No. S70129. A three-dimensional 6" relief of the side of the moon visible from the earth. Includes facts about the moon and a complete map for identifying the surface features. \$2.50. (I-U)

**STAR AND SPACE MAPS.** No. S9245. A set of 3 maps, 50" x 38" covering the solar system, a star chart, and the moon. \$1.25 per set. (U)

Educational Services, 1730 I St. NW., Washington 6, D.C.

**INSTRUCTO** flannelboards and visual aids. No. 265—*The Earth and Its Moon*—for teaching phases of the moon, eclipses, earth-moon-sun relations. \$2.50. No. 266—*The Solar System*—shows orbits of planets around the sun. \$2.95. Flannel boards—18" x 28" to 36" x 72", \$3.50 to \$19.95. (I-U)

Federal Aviation Agency, Aeronautical Reference Branch, Washington 25, D.C.

**GLOSSARY OF AIR TRAFFIC CONTROL TERMS.** Free. (U)

**FAA PUBLICATIONS.** A list of publications available at FAA and the U.S. Government Printing Office. Free. (U)

Field Enterprises Educational Corporation, Merchandise Mart Plaza, Chicago 54, Ill.

**SPACE TRAVEL AND GUIDED MISSILES.** A reprint of two articles from *The World Book Encyclopedia*. No. SA-1794. 25 cents. (U)

Teaching unit on **WEATHER.** No. SC-2016. Adaptable to all grades. Elements of weather, causes and effects, weather patterns, and predictions. 25 cents.

Franklin Institute, Philadelphia 3, Pa.

A brief list of books and pamphlets on sale at the book counter at Franklin Institute, but which are also available by mail. Topics include astronomy, how to make telescopes, star maps, moon maps, space exploration, etc. Many of the booklets and pamphlets are difficult to find elsewhere. Book list is free. (U)

C. S. Hammond & Co., Maplewood, N.J.

**SPACE KIT.** Includes a 29" x 42" chart of the entire solar system, illustrations of space vehicles, and a wheel giving answers to questions about the planets. \$1. (U)

**HANDY STAR FINDER AND PLANET TABLES.** Has a simplified star finder wheel showing all principal fixed stars and planets visible at any hour of the year in the northern hemisphere. Planet tables are included. \$1. (U)

**International Civil Aviation Organization, International Aviation Building, Montreal, Canada**

**Exhibition picture set.** A set of 8 posters in color, 14" x 18", with legends in English, French, or Spanish, telling the story of ICAO. \$2 per set. (U)

**INTERNATIONAL CIVIL AVIATION ORGANIZATION.** A trilingual (English, French, and Spanish) pamphlet describing the work of ICAO. Free. (U)

**Junior Engineering Technical Society, 200-201 M.E. Lab., Michigan State University, East Lansing, Mich.**

**AMATEUR ROCKETEERING IN THE CENTRAL MICHIGAN AREA.** A history of the Central Michigan Rocket Society that also serves as a guide to amateur rocketeers. Includes proposed bylaws, sample registration form for a rocket-launching expedition. Free. (U)

**Models of Industry, 2100 Fifth St., Berkeley, Calif.**

**MODEL WEATHER STATION KIT.** No. 100. 23 experiments that illustrate basic laws which affect weather, and instructions for building 10 weather instruments. A 36-page handbook explains weather terms. Instruction supplement provides suggested activities, supplementary reading textbook correlation, films, filmstrips, and vocabulary list. \$7.95. (U)

**Modern Educational Aids, Post Office Box 209, Wilmette, Ill.**

**MAP OF OUTER SPACE.** 42" x 35" five-color map showing the solar system and including information about distances, weights, and heat. \$1. (U)

**MOON MAP.** 38" x 32" five-color map of the moon identifying many landmarks. Closeup views of the moon's surface. \$1. (U)

**SPACE MOBILE.** A do-it-yourself plastic mobile in bright colors, with rockets, spaceships, and satellites delicately balanced to make an attractive hanging. \$2. (P-I-U)

**National Aeronautics and Space Administration, Washington 25, D.C.**

**TIROS.** An illustrated leaflet explaining the weather observation satellites. Free. (U)

**ECHO I.** An illustrated leaflet explaining the passive communications satellite—the 100-foot-diameter plastic sphere. Free. (U)

**X-15.** An illustrated leaflet explaining the experimental X-15 rocket ship project. Free. (U)

**EXPLORING SPACE—Project Mercury and Apollo.** An illustrated booklet explaining the Nation's first manned spaceflight projects. Free. (I-U)

**THE SPACE FLIGHT OF ASTRONAUT SHEPARD AND THE FREEDOM 7.** May 5, 1961. Brief pictorial highlights of America's first manned suborbital flight in space. Free. (I-U)

**THIS IS NASA.** An illustrated leaflet giving an overview of the work and plans of the National Aeronautics and Space Administration. Free. (U)

**THE CHALLENGE OF SPACE EXPLORATION.** An illustrated booklet introducing the general reader to the technical side of space exploration. Free. (U)

**THE PRACTICAL VALUES OF SPACE EXPLORATION.** A report of the Committee on Science and Astronautics, U.S. House of Representatives, 86th Congress, 2d session, July 5, 1960. Union Calendar 928, House Report 2091. Answers to the question, "Why Explore Space?" are set forth in this explanation which is designed to tell taxpayers what they can hope for ultimately in return for the sums being spent on the exploration of space. Free.

**National Air Museum, Smithsonian Institution, Washington 25, D.C.**

Information leaflets. Illustrated pamphlets giving information about historical aircraft and flyers. *The Wright Brothers*, Information Leaflet No. 8 (rev.); *Samuel Pierpont Langley*, No. 29 (rev.); and *Charles A. Lindbergh and the Spirit of St. Louis*, No. 187, are representative of such leaflets, all of which are free. (U).

**National Association of Rocketry, Suite 1962, 11 West 42d St., New York 36, N.Y.**

Brochures describing NAR's model rocketry program and information about membership in the organization. Free. (U)

**National Aviation Education Council, 1025 Connecticut Ave. NW., Washington 6, D.C.**

**EARTH AND SPACE GUIDE FOR ELEMENTARY TEACHERS.** Based on questions children ask about the earth and space, the stars and sun, this GUIDE is designed to help the teacher introduce elementary earth and space science to young children. The fundamental quality of scientific inquiry—making an effort to find out—is used to build concepts, acquire information, and develop experiences. A teaching guide developed for and used by schools in Pennsylvania. \$1. (P-I) (Available October 1961)

**TEACHING GUIDE FOR THE EARTH AND SPACE SCIENCE COURSE.** A comprehensive guide for teachers of junior high school science, prepared by the Pennsylvania State Department of Public Instruction.



Covers geology, oceanography, weather, climate, and space science. \$1. (U)

**THE ARITHMETIC OF FLYING.** More than 250 problems involving skills in percentages, decimals, and fractions which the pilots of small aircraft must solve in order to fly safely. Relates arithmetic to the world of flight and includes problems dealing with altitude, temperature, groundspeed, fuel consumption, airplane loads, navigation, etc. For seventh- and eighth-grade arithmetic, or for gifted pupils in the intermediate grades. 50 cents.

**AVIATION UNITS FOR THE PRIMARY GRADES.** Includes three units—"Getting Acquainted With Aviation," "Airport Workers," and "Aviation: Simple Overview." Suggested activities, materials, and methods for integrating aviation subject matter with the language arts, science, music, arithmetic, social studies, etc., in grades 1 through 3. For the teacher. 50 cents.

**AVIATION UNITS FOR THE INTERMEDIATE GRADES.** Includes three units—"The Airport and Airport Safety Rules," "Weather: Its Importance in Aviation," and "Aviation: History, Parts of a Simple Plane, Principles of Flight." Suggested activities, materials, and methods for integrating aviation subject matter with language arts, music, arithmetic, social studies, science, etc., in grades 4 through 6. For teachers. 50 cents.

**THE WRIGHT BROTHERS' FLYER.** A handsome black-and-white drawing of the first Wright brothers' aircraft, 16" x 20", suitable for framing. Sent in mailing tube. \$1. (P-I-U)

**SUGGESTIONS FOR COMMEMORATING WRIGHT BROTHERS DAY—DECEMBER 17.** A leaflet to help teachers and students prepare a suitable observance of the anniversary of the first successful, heavier-than-air powered flight. Free. (I-U)

**PICTURES, PAMPHLETS, AND PACKETS.** 4th edition. Sources of free and inexpensive booklets, pamphlets, charts, pictures, films, filmstrips, and many other kinds of teaching aids dealing with aviation, weather, astronomy, and space exploration. Single copy free to teachers and librarians requesting it on school or library stationery. (Available November 1961)

**SKYLIGHTS.** An aerospace fact sheet on current aviation and space news, useful to teachers and older students. Published monthly during the school year. Single copy free to teachers, librarians, and adult leaders of youth groups. Requests must be made on school or organization stationery. (U)

**PROJECT MERCURY.** An updated reprint from the *NEA Journal* describing the aims of *Project Mercury*—

America's first man-in-space project. Includes suggestions for further study and activity. Single copy free. (I-U)

**HOW TO DEVELOP A TEACHING UNIT ON ROCKETS AND SPACE TRAVEL.** A four-page leaflet including suggestions for motivation, procedures, content organization, activities, evaluation, and resources useful to teachers on all grade levels. Single copy free.

**TIME AND SPACE.** A unit for junior high school science and mathematics, and a guide to teachers who wish to develop similar units for their own classrooms. Single copy free. (U)

National Geographic Society, 16th and M Sts. NW., Washington 6, D.C.

**MAP OF THE HEAVENS.** 42" x 28", showing constellations, The Milky Way, and stars. Reverse side provides charts of star positions by months. \$1., paper; \$2., fabric. (U)

A list of space travel articles appearing in issues of the *National Geographic* magazine from December 1926 through May 1961. Free. (U)

A list of aviation articles appearing in issues of the *National Geographic* magazine from January 1918 through December 1960. Free. (U)

*Geographic School Bulletins* featuring the following subjects:

*Balloons and dirigibles:* Vol. 35, No. 20, May 6, 1957. 10 cents. (U)

*Vanguard rocket:* Vol. 36, No. 5, Nov. 4, 1957. 10 cents. (U)

*Rockets:* Vol. 36, No. 12, Jan. 6, 1958. 10 cents. (U)

*Satellites:* Vol. 36, No. 20, Mar. 3, 1958. 10 cents. (U)

*Explorer satellite and IGY tracking projects:* Vol. 36, No. 26, Apr. 21, 1958. 10 cents. (U)

*The X-15:* Vol. 36, No. 30, May 19, 1958. 10 cents. (U)

*Tiros I:* Vol. 39, No. 2, Oct. 10, 1960. 10 cents. (U)

*NASA:* Vol. 39, No. 7, Nov. 14, 1960. 10 cents. (U)

*Saturn rocket:* Vol. 39, No. 13, Jan. 9, 1961. 10 cents. (U)

F. A. Owen Publishing Co., Dansville, N.Y.

Science Activities Kits. **ASTRONOMY**, No. 680; **JETS**, No. 681; **ROCKETS**, No. 670; and **WEATHER**, No. 678. Each kit includes a teacher's guide giving all the information necessary for presenting the activity, 35 pupil booklets of experiments, and a large illustrated developmental chart. \$4 for each kit. (U)

**Rand McNally & Co.,** Post Office Box 7600, Chicago 80, Ill.

**GLOBE GUIDE.** A 22-page illustrated booklet explaining the use of the globe, and discussing the moon, the solar system, earth satellites, measurement of time, and other related subjects. 50 cents. (I-U)

**The Rocket Research Institute, Inc.,** 3262 Castara Ave., Glendale 8, Calif.

**ROCKET SAFETY EDUCATOR.** A newsletter for those concerned with rocket safety education. Includes reports on current amateur projects, activities of amateur rocket groups, and safety suggestions. \$2 a year for four issues.

**THE ASTROPHILATELIST.** A newsletter reporting on mail-by-rocket activities. \$1 a year for two or three issues, including an associate membership in the Rocket Research Institute. (U)

**HISTORIC DATA ON RRI ROCKETPOST FLIGHTS.** Includes a price list of rocket flight philatelic covers for sale to stamp collectors. Free. (U)

**SIXTEEN YEARS OF ROCKET SAFETY.** A 37-page illustrated report giving an account of rocket safety education programs, activities, and philosophy of the Rocket Research Institute. \$1.50. (U)

**Science Associates,** Box 216, 194 Nassau St., Princeton, N.J.

Catalog and folders illustrating and describing various weather instruments and astronomy teaching aids and equipment. Free. (U)

**CLOUD CHART.** In color, predominating cloud formations and the weather predictions that may be derived from their presence. Large size, 22½" x 17¾", 10 cents. Small size, 16¾" x 10¾"; minimum order, 25 for \$1.25. 100 small charts, \$5. (I-U)

**Science Materials Center,** 59 Fourth Ave., New York 3, N.Y.

**CELESTIAL JIG-SAW PUZZLE.** No. 0522. A 17" x 17" puzzle to introduce children to the names and positions of the constellations. \$1.95. (I-U)

**WHIRLING WORLDS.** No. 0524. A colorful mobile of the planets and their moons with a handbook describing and picturing each planet. Ready for assembly. \$3.95. (P-I-U)

**Science Service,** 1719 N St. NW., Washington 6, D.C.

**SCIENCE EXHIBITS.** A "how to" book for students planning a science exhibit. Covers selection of materials, presentation, display, labeling, lighting, etc. \$2. (U)

**SCIENCE PROJECT HANDBOOK.** A guide for students planning a science project or exhibit at a science fair. 55 cents. (U)

**ASTRONOMY KIT.** No. 229. A collection of materials for students from the "Things of Science" listings. 75 cents. (I-U)

**Smithsonian Institution,** Distribution Section, Editorial and Publications Division, Washington 25, D.C.

**MASTERS OF THE AIR.** An illustrated booklet recording the history of manned flight. A revised edition is currently in process. Write for information as to the date of publication and price. (U)

**THE NATIONAL AERONAUTICAL COLLECTIONS.** A book describing the history of aeronautics illustrated by the materials in the Smithsonian's National Air Museum. Includes more than 200 photographs. \$1.50. (U)

**Space Science,** 4211 Colie Drive, Silver Spring, Md.

**THE SPACE SCIENCE TEACHING HANDBOOK.** A 16-page booklet covering outdoor observing parties, science fair projects, teaching aids, a discussion of teaching the space sciences, school astronomy clubs, and related subjects, with annotated references. 25 cents. (U)

**Strafford Industries, Inc.,** Box 702, Devon, Pa.

**MAP OF THE MOON.** 35" x 45", giving over 600 named lunar features indexed for easy reference. \$1 folded; \$1.50 rolled. (U)

**MAP OF MARS.** 22" x 28", giving place names and locations with explanations. \$1 rolled. (U)

**Superintendent of Documents,** U.S. Government Printing Office, Washington 25, D.C.

**THIRD SEMI-ANNUAL REPORT OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION.** House Document 454, Aug. 30, 1960. An accounting of the activities of NASA during the period Oct. 1, 1959, to Apr. 1, 1960. Progress reports on space flight projects and advanced research make up the bulk of this document. 65 cents. Suitable for teachers.

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION—FOURTH SEMI-ANNUAL REPORT TO CONGRESS.** Covers the period Apr. 1, 1960, through Sept. 30, 1960. Discusses satellite applications, manned space flight, sounding rockets, lunar, planetary and interplanetary programs, tracking and data acquisition, launch vehicles, propulsion, the life sciences program, aeronautical research, international cooperative programs, and many other activities of NASA. Suitable for teachers. Write for price.

**EXTRACLASS ACTIVITIES IN AVIATION, PHOTOGRAPHY, RADIO FOR SECONDARY SCHOOL PUPILS.** Office of Education Bulletin No. OE-33009 (Series 1956, No. 11). Actual practices of three club activities important to the Nation's scientific and technological progress. 25 cents. Suitable for teachers.

U.S. Office of Education, c/o Specialist in Aerospace Education, Washington 25, D.C.

**AEROSPACE PERIODICALS FOR TEACHERS AND PUPILS.** Leaflet No. OE-29010. Revised 1960. Annotated list of aviation and aerospace periodicals giving current news, trends, and information in this field. For the teacher. Free.

**AEROSPACE EDUCATION COURSES, UNITS, AND ACTIVITIES.** Leaflet No. OE-29015. Reprint from *School Life*, April 1960. Third in a series of articles on aerospace education. For the teacher. Free.

**SPEED AS A FACTOR IN AVIATION PROGRESS.** Leaflet No. OE-29018. Revised September 1960. A list of speed records including the names of record holders, the dates records were set, the places and the speeds attained (1906 to 1960). Free. (U)

**AEROSPACE AND THE CURRICULUM.** Leaflet No. OE-33004. Reprint from *School Life*, December 1959. First in a series of articles on aerospace education. For the teacher. Free.

**AEROSPACE EDUCATION IN THE SOCIAL STUDIES.** Leaflet No. OE-31001. Reprint from *School Life*, January 1960. Second in a series of articles on aerospace education. For the teacher. Free.

U.S. Post Office Department, Press, Radio, and Television Branch, Washington 25, D.C.

**A BRIEF HISTORY OF AIR TRANSPORTATION OF MAIL.** An illustrated pamphlet relating the story of airmail from 1918 to the present time. Free. (U)

## Section 2—Films

The films listed in this section are 16-mm. sound productions in color or in black and white as indicated. They are for sale at the prices indicated. However, many of these are also available for rental. Consult your nearest educational film rental library, or write to seller for the location of the film library handling specific films. Additional films may be located in the following film directory:

**EDUCATIONAL FILM GUIDE.** The H. W. Wilson Co., 950 University Ave., New York 52, N.Y. Annual supplements available, also.

Also:

**A DIRECTORY OF 3,660 16-mm. FILM LIBRARIES.** U.S. Office of Education Bulletin 1959, No. 4. Available from U.S. Government Printing Office, Washington 25, D.C. \$1. An annotated directory of more than 3,600 companies, institutions, and organizations which lend or rent thousands of 16-mm. films on all subjects.

Academy Films, 800 North Seward St., Hollywood 38, Calif.

**PORTRAIT OF THE SUN.** 19 min. The characteristics of the sun and its importance to living things on earth. *Sunspots, temperature, causes of day and night and the changing seasons* are a few of the many subjects presented. Rental, black and white, \$6.40; color, \$10.40. Sale price, black and white, \$100; color, \$190. (U)

Coronet Films, Coronet Building, Chicago 1, Ill.

**AIRPLANES: PRINCIPLES OF FLIGHT.** 11 min. Four forces controlling flight, and the principles that govern movement of fixed-wing and rotary-wing, aircraft. Color, \$110; black and white, \$60. (I-U)

**BEYOND OUR SOLAR SYSTEM.** Black and white. 11 min. Through telescopic photographs and artwork, helps clarify basic concepts about stars, nebulae, constellations, and galaxies beyond the Milky Way. \$60. (I)

**MOON AND HOW IT AFFECTS US, THE.** 11 min. Shows telescopic views of the moon's surface, and illustrates its position in the universe in terms of size, movement, and distance from the earth. Color, \$110; black and white, \$60. (I)

**WHAT DO WE SEE IN THE SKY?** 11 min. Provides a series of meaningful observations of the sky and the heavenly bodies we see in it. Color, \$110; black and white, \$60. (P)

Encyclopaedia Britannica Films, 1150 Wilmette Ave., Wilmette, Ill.

**EARTH SATELLITES—EXPLORERS OF OUTER SPACE.** 17 min. Explains how man-made satellites

stay in orbit and what is learned from them. Black and white, \$90; color, \$180. (I-U)

**EXPLORING THE NIGHT SKY.** Black and white. 10 min. The story of constellations and how they got their names, nebulae and other star phenomena, setting and rising of stars, and how stars helped in the making of the calendar. \$60. (I-U)

**GRAVITY: HOW IT AFFECTS US.** 14 min. What gravity is and how it affects man and our earth in the universe. Explains how gravity would affect man during space flight and shows gravitational studies and experiments of Galileo and Newton. Color, \$150; black and white, \$75. (P-I-U)

**JET PROPULSION.** 13 min. Provides a graphic explanation of jet propulsion and its use in aircraft. Explains principles of jet engines, portrays jet aircraft in flight, and suggests future potentiality. Color, \$120; black and white, \$60. (I-U)

**ROCKETS: HOW THEY WORK.** 16 min. Basic principles of rocket propulsion, compared with other types of motive power. Countdown and rocket launching scenes, and explanations of rocket guidance, fuels, and multistage rockets. Color, \$180; black and white, \$90. (I-U)

**TRIP TO THE MOON, A.** 16 min. An imaginary rocket trip to explore the surface of the moon. Conditions to be met in navigating to the moon. Includes footage on the Russian lunar probe to the other side of the moon. Color, \$180; black and white, \$90. (U)

Film Associates of California, 11014 Santa Monica Blvd., Los Angeles 25, Calif.

**ASTEROIDS, COMETS, AND METEORITES.** 11 min. Shows how astronomers have learned about

asteroids, comets, and meteorites; what they look like; and their place in the solar system. Also illustrates man-made satellites. Color, \$110; black and white, \$60. Write for rental service information. (U)

**ROCKETS: PRINCIPLES AND SAFETY.** 11 min. An introduction to the physical principles upon which rockets work. Explains why rocket motors can operate in outer space, and stresses their dangerous potentials and the need for safety precautions. Color, \$110; black and white, \$60. (U)

**SATELLITES: STEPPING STONES TO SPACE.** 17½ min. Explains what satellites are and their importance, how they are launched, and how they stay in orbit. Color, \$170; black and white, \$90. (U)

International Film Bureau, Inc., 332 South Michigan Ave., Chicago 4, Ill.

**AIRPLANES ARE FOR SUSAN AND BILLY.** 14 min. Color. Uses animation, direct photography, and aerial-follow photography to allow a child to experience handling the controls. Explains basic principles of flight. \$118. (I-U)

**REACHING INTO SPACE.** 14 min. Color. An introduction to space exploration. Explains rocket power, thrust, and escape velocity. Includes pictures of astronauts undergoing space flight training and pictures of the earth taken from rocket. \$150. (I-U)

McGraw-Hill TEXT-FILMS, 330 West 42d St., New York 36, N.Y.

**AIRPLANES AND HOW THEY FLY.** Black and white. 11 min. (Young America release.) Discusses the principles of aircraft flight and the function of aircraft controls, and illustrates various types of modern aircraft. \$60. (I-U)

**EXPLORING THE MOON.** Color. 16 min. By means of special telescopic and photographic equipment at the Griffith Observatory, the viewer is taken on a hypothetical expedition to the moon. Characteristics and topographical features are discussed. \$180. (U)

**SUN'S FAMILY, THE.** Black and white. 9 min. (Young America release.) Explains the nature of the solar system, discussing the sun and the planets that travel about it. \$60. (I-U)

**THIS IS THE MOON.** Black and white. 10 min. (Young America release.) Explains the relation of the moon to the sun and earth, how the moon gets its light, the phases of the moon, and its physical characteristics. \$60. (P-I)

**WEATHER STATION, THE.** Black and white. 11 min. (Young America release.) A discussion on how the weather station gathers data on the weather, the instruments it uses for this, and how the weather is forecast from such data. \$60. (I-U)

### Section 3—Filmstrips

The filmstrips listed in this section are 35 mm., with captions, in black and white and in color as indicated. Because of generally lower purchase prices, rental arrangements usually are not offered. Some distributors will ship filmstrips on approval. Additional filmstrips may be located in the

**FILMSTRIP GUIDE.** H. W. Wilson Co., 950 University Ave., New York 52, N.Y. Annual supplements available, also.

Curriculum Materials, 1319 Vine St., Philadelphia 7, Pa.

**AIR TRANSPORTATION.** 26 frames, color. A revision of a 1950 filmstrip that shows the history of flight and the influences of air transportation, including the social and political problems resulting from the airplane. \$4.50; rental, \$1.00. (U)

Encyclopaedia Britannica Films, 1150 Wilmette Ave., Wilmette, Ill.

**FLIGHT AROUND THE MOON.** 49 frames, color. An imaginary flight around the moon in a manned rocket ship. \$6. (U)

**MAN BECOMES AN ASTRONOMER.** 49 frames, color. Describes the teachings of Copernicus and Galileo, and shows how man has learned about the universe. \$6. (U).

**MAN IN FLIGHT.** 49 frames, color. A history of aviation from the Wright brothers through World War II. \$6. (U)

**MAN IN SPACE.** 49 frames, color. Demonstrates how man reacts physically and mentally to the experience of space travel. \$6. (U)

**MAN LEARNS TO FLY.** 49 frames, color. Summarizes the history of flight before the 20th century. \$6. (U)

**YOU AND THE UNIVERSE.** 14 frames, color. Introduces the solar system, explains the orbits of the planets around the sun, and describes the moon, stars, comets, and meteors. \$1.66. (P)

Eyegate House, 146-01 Archer Ave., Jamaica, Long Island, N.Y.

**AVIATION IN THE SPACE AGE.** 39 frames, color. Reviews progress of aviation, introduces jet and rocket engines, radar, and automatic controls. Discusses various types of planes. \$4. (U)

**CONQUEST OF SPACE, THE.** 39 frames, color. Background of rockets; reasons for space research; use of rockets in peace and war; the difference be-

tween balloons, planes, and rockets in flight. \$4. (U)

**DESTINATION SPACE.** 36 frames, color. Factors that must be considered in placing a satellite in orbit, particularly manned vehicles. Discusses improbability of man ever reaching the stars. \$4. (U)

**EXPLORATION OF SPACE.** 36 frames, color. Compares space studies of Copernicus, Galileo, and Kepler with today's techniques. Explains recent discoveries in space and discusses why we should explore space. \$4. (U)

**HAZARDS IN SPACE TRAVEL.** 36 frames, color. Problems and hazards of space travel, and how they are being solved—acceleration, food, air, sanitation, g forces, radiation, heat and cold, escape systems. \$4. (U).

**MAN TRAVELS IN SPACE.** 36 frames, color. Space vehicles of the future, testing and training of astronauts, safety devices developed, and a discussion of satellite payloads and their accomplishments. \$4. (U)

**MOON—OUR NEAREST NEIGHBOR IN SPACE, THE.** 37 frames, color. Explains size and shape of moon, causes of the phases of the moon, and how man-made moons are sent into orbit around the earth. \$4. (I-U)

**PIONEERS OF SPACE.** 35 frames, color. Describes history of man's efforts to fly, including references to da Vinci, the Wright brothers, and the first balloons. \$4. (U)

**STARS AND PLANETS.** 37 frames, color. What stars are, the constellations, and the planets of our solar system. \$4. (I-U)

**STATIONS ON THE MOON.** 39 frames, color. Plans for the exploration of the moon, including interim plans and the race to the moon with the Soviets. \$4. (U)

**TIME, SPACE, AND ENERGY.** 30 frames, color. Introduces concepts of time, space, and energy as applied to our universe. Discusses gravitation, life

in space, escape velocity, radio telescopes, light-years, and many other topics in the news. \$4. (U)

**VISIT TO A WEATHER STATION.** 44 frames, color. A typical weather station, and the names and uses of basic weather instruments. \$4. (I)

Films for Education, Audio Lane, New Haven, Conn.

**BETWEEN THE PLANETS.** 59 frames, color. The debris of space—comets, asteroids, and meteors which so far have proved little hazard to space travel. \$7.50. (U)

**EXPLORING THE SPACE AROUND EARTH.** 59 frames, color. Why rockets are necessary for the exploration of space, how they work. \$7.50. (U)

**INFORMATION FROM SATELLITES.** 63 frames, color. The uses of satellites and space stations. Possibilities of space travel. \$7.50. (U)

**MARS.** 45 frames, color. The fascinating mysteries of this planet, its relationship to the solar system, and characteristics. \$7.50. (U)

**MERCURY AND VENUS.** 40 frames, color. Discusses these planets, their relation to the solar system and their characteristics. \$7.50. (U)

**MOON, THE.** 72 frames, color. Ancient concepts and modern knowledge about the moon. Phases of the moon are explained. \$7.50. (U)

Filmstrip House, 432 Park Ave. South, New York 16, N.Y.

**MOON, THE.** 31 frames, color. Gravitation, tides, lunar eclipses, and the major features of the moon's surface. \$5. (I)

**OUR MOON.** 28 frames, color. An imaginary trip to the moon points out the craters, explains long hot days and long cold nights, and depicts phases of the moon in detail. \$5. (I-U)

**OUR SOLAR SYSTEM.** 29 frames, color. Presents the solar system as the sun's family. Relates sizes and distances to the familiar basketball court. \$5. (I-U)

**PLANETS, THE.** 31 frames, color. Relation of the planets to the solar system; facts about the nine known planets, and how earth differs from them. \$5. (I)

**STARS, THE.** 32 frames, color. Stresses vastness of interstellar space, orderliness of Nature as revealed in constant speed and rotation; identifies major constellations; and shows how spectroscopy reveals facts about the stars. \$5. (I)

**SUN, THE.** 34 frames, color. How astronomers study the sun; sunspots, prominences, and appearances; and how man is dependent on radiant energy from the sun. \$5. (I)

**WHAT WE SEE IN THE SKY.** 28 frames, color. Describes the stars, planets, meteors, and comets; and explains how little the sky has changed in the past centuries. \$5. (I-U)

NOTE.—For October 1961 release: *How an Astronaut Lives in Space*; *How Rockets Work*; *How Gravity Works*; and *How Space Science Helps Us*.

Jam Handy, 2621 East Grand Blvd., Detroit 11, Mich.

**EARTH'S ATMOSPHERE, THE.** 37 frames, color. The layers of the atmosphere are clearly and simply visualized. How the phenomena occurring in each layer present problems in man's efforts to travel in the atmosphere and beyond. \$5.75. (U)

**GETTING READY FOR A SPACE TRIP.** 29 frames, color. A young boy puts on the different parts of a space suit. Children watch him in testing machines such as the centrifuge, rocket sled, and various other devices. \$5.75. (P)

**HOW DO HELICOPTERS FLY?** 33 frames, color. How rotary wing provides lift and thrust; how the pilot controls the helicopter. The various kinds of helicopters and how they serve man. \$5.75. (U)

**HOW DO JETS FLY?** 40 frames, color. How a jet engine works; the sound barrier; and the advantages of jets over propeller-driven planes. \$5.75. (U)

**ROCKET POWER FOR SPACE TRAVEL.** 40 frames, color. How a rocket works in airless space. Multistage rockets. Rocket planes. How satellites stay in orbit. Problems of space travel. \$5.75. (U)

**ROCKETS TO SPACE.** 30 frames, color. The physical makeup of the rocket and how it works. Includes a rocket launching from the time the rocket is enclosed in its gantry until its payload is orbiting in space. \$5.75. (P)

**SAFETY IN FLIGHT.** 37 frames, color. How the study of weather and the use of radar and instrument landing systems contribute to the safety of air travel. \$5.75. (U)

**SPACE TRIP TO THE MOON. A.** 30 frames, color. Here children see the probable clothing and transportation needed to make a trip to the moon. Known conditions on the moon and their effect upon man are portrayed. \$5.75. (P)

**WHAT ARE SATELLITES?** 28 frames, color. Children learn how a satellite gets into orbit, how they are useful to man, and how a man-carrying satellite may be orbited and brought back to earth. \$5.75. (P)

**WHAT ARE SPACE STATIONS?** 28 frames, color. This is the story of how a space station may be assembled in orbit. The living and working quarters of a space station are shown. How man can make use of the station is explained. \$5.75. (P)

**WHAT IS SPACE?** 31 frames, color. Meteors, the moon and planets, the sun and other stars, and the galaxies that man may explore in outer space. \$5.75. (P)

**WHAT MAKES AN AIRPLANE FLY?** 40 frames, color. How the propeller and wing are designed to make an airplane fly. The four forces at work during flight. Examples of the ways aircraft serve man. \$5.75. (U)

McGraw-Hill TEXT FILMS, 330 West 42d St., New York 36, N.Y.

**CONSTELLATIONS.** 44 frames, color. Shows how to build a pathfinder and how to make a planetarium of a lantern-slide projector. Explains how to locate constellations of the Northern and Southern Hemispheres by using a pathfinder and star chart. \$6. (I-U)

**FLYING WITH JETS AND ROCKETS.** 50 frames, color. Demonstrates how a jet engine works and how it differs from a rocket. \$6.50. (U)

**FUN WITH STARS.** 54 frames, color. Show how to locate the North Star and to recognize the constellations of Orion, Cassiopeia, and the Big Dipper. Demonstrates how to use a light bulb and pierced tin can to project a constellation on the ceiling. \$6. (I-U)

**HOW AIRPLANES FLY.** 42 frames, color. Photographs and drawings present basic principles of flight. Simple experiments demonstrate flow of air pressure on aircraft wings. \$6. (I-U)

**ROCKET TO THE MOON.** 41 frames, color. Presents known facts about the moon, and discusses problems to be overcome to send an unmanned rocket to the moon and back. \$6. (I-U)

**WHAT ARE STARS?** 45 frames, color. Explains why some stars appear brighter than others, and what determines their color. Discusses some stars and constellations. \$6. (I-U)

Society for Visual Education, 1345 West Diversey Parkway, Chicago 14, Ill.

**AIR ABOUT US, THE.** No. 1427-6. 48 frames, black and white. Air and its properties—compression, expansion, contraction, pressure movement (wind), and the chemistry of air. \$3. (U)

**AIR AROUND US.** No. LT 435-7. 36 frames, color. The elements of weather—sky, winds, and clouds. \$4.75. (P)

**AIRPORTS, AND AIRPLANES.** No. LT 221-1. 30 frames, color. Explains airplanes and the activities of an airport. \$4.75. (P)

**CLOUDS, RAIN AND SNOW.** No. L 427-13. 48 frames, color. Formation of clouds, rain, snow, hail, sleet, dew, frost, and fog. Rainbows, lightning, and other phenomena. \$6. (U)

**COMETS AND METEORS.** No. LX 487-4. 56 frames, black and white. How they differ, where they come from. Meteors that have struck earth, and comets. \$3.50. (U)

**CONSTELLATIONS.** No. LA 487-6. 52 frames, black and white. How to locate them. How they change positions. A 12-frame sequence shows the different constellations that appear each month. \$3.50. (U)

**CURRENT EVENTS IN SPACE.** No. L 484-2. 47 frames, color. Explains functions of satellites. Covers first successful moon shot showing step-by-step launching of the satellite into orbit. Tells how it is tracked. \$6. (U)

**EARTH IN SPACE, THE.** No. LX 487-1. 40 frames, black and white. Size and movements of the earth and its relationship to the sun. Gravitation is explained. \$3.50. (U)

**EARTH'S NEAREST NEIGHBOR.** No. LA 427-14. 45 frames, color. A description of the moon and its relationship to earth. Includes imaginary exploration of the moon and discusses the needs of the human body in relation to conditions on the moon. \$6. (U)

**EARTH'S SATELLITE—THE MOON.** No. LX 487-3. 66 frames, black and white. The phases of the moon, how it affects gravity and tides, and its features as seen through the telescope and an imaginary trip. \$3.50. (U)

**FINDING OUT ABOUT DAY AND NIGHT.** No. LA 424-12. 26 frames, color. Explains functions of the sun and moon, and the work of astronomers. \$4.50. (P)

**FINDING OUT ABOUT THE CLOUDS.** No. LA 424-11. 27 frames, color. Different kinds of clouds and their effects on weather. \$4.50. (P)

**FINDING OUT ABOUT THE SKY.** No. LA 424-6. 22 frames, color. Stars and their formations. Sources of light, night and day. \$4.50. (P)

**JET-AGE FLIGHT.** 32 frames, color. How jet airliners fly and how jet engines work. Describes air traffic control, passenger services, and behind-the-scenes activities of jet-age flight. Teacher's manual included. \$1 service charge. (U)

**LEAVING THE WORLD.** No. L 484-1. 41 frames, color. Pictures man-made satellites recently launched. Shows how rockets developed. Explains rocket power, thrust, and speed of release. \$6. (U)

**MAN IN SPACE.** No. L 484-3. 47 frames, color. Shows how men are being trained for outer space.



**Obstacles to be overcome**—weightlessness, acceleration, temperature extremes, radiation. Discusses space stations. \$6. (U)

**MOON, SUN AND STARS.** No. LT 435-9. 33 frames, color. The relationship of the moon, sun, and stars to the universe. \$4.75. (P)

**NEIGHBORS IN SPACE.** No. LS 3. 36 frames, color. Up-to-date facts on sun, moon, planets, and stars. \$5.50. (U)

**OUR OCEAN OF AIR.** No. L 427-3. 48 frames, black and white. Air density, high and low pressure areas; the use of barometers, wind direction and velocity. \$3. (U)

**PICTURES IN THE SKY.** No. LA 427-17. 46 frames, color. Constellations and their locations, including first magnitude stars. Discusses the earth's rotation and why summer and winter skies are different. \$6. (U)

**SKY ABOVE OUR EARTH, THE.** No. LA 425-3. 51 frames, color. The moon, stars, comets, planets. Introduces space study—rockets, satellites, and the future of space travel. \$5. (P)

**SPACE TRAVEL A.D. 2000.** No. L 484-4. 52 frames, color. Emphasizes nature of space, facts of astronomy, and shows relationship of time and distance to space travel. What other worlds might be like; new forms of power being studied—atomic engines, plasma and photon power, ion propulsion. \$6. (U)

**STARS AND GALAXIES.** No. LA 487-5. 43 frames, black and white. Size and distance from the earth. Number of stars. The Milky Way, nebulae, and other galaxies we know. \$3.50. (U)

**SUN AND ITS FAMILY, THE.** No. LA 427-15. 46 frames, color. Planets, asteroids, comets, meteors, and other elements of the solar system. Gravity, solar energy, and the seasons are discussed. \$6. (U)

**SUN AND ITS PLANETS, THE.** No. LX 487-2. 55 frames, black and white. What we know about other planets and how they move. Explains asteroids and auroras. \$3.50. (U)

**WEATHER.** No. LS 4. 34 frames, color. How clouds form and change to rain. Lightning and air fronts are discussed. \$5.50. (U)

**WEATHER EXPERIMENTS.** No. T 436-6. 32 frames, color. Weather throughout the four seasons

showing children making and using simple devices for measuring different phases of weather: thermometer, rain gage, barometer, weather vane, etc. \$4.75. (P)

**New WHY DOES IT RAIN, SNOW, HAIL AND SLEET?** No. L 421-4. 39 frames, color. Latest scientific methods for weather study, including TIROS satellite and actual photos taken many miles above the earth. Conditions for cloud formations, relative humidity, difference between sleet and hail. \$5.50. (U)

**New WHY DOES THE WEATHER CHANGE?** No. L 421-2. 39 frames, color. Chief air masses that affect weather in the United States. Defines polar, tropical, maritime, and continental in relation to weather. Explains warm, cold, stationary, and occluded fronts. Also photographs of various types of clouds. \$5.50. (U)

**New WHY DOES THE WIND BLOW?** No. L 421-1. 33 frames, color. Explains cause of local winds, jet-stream, prevailing winds. Also actual photos of a tornado, a hurricane (as seen from the air), and a blizzard. \$5.50. (U)

**New WHY THE SEASONS?** No. L 421-3. 30 frames, color. How earth's relationship to sun produces the seasons. Defines summer and winter solstices and equinoxes. \$5.50. (U)

**WORK OF ASTRONOMERS, SPACE TRAVEL.** No. LA 487-7. 45 frames, black and white. Observatories and equipment and the information they obtain. Recent satellites launched. The future of space travel and manned space stations. \$3.50. (U)

**YOU AND THE UNIVERSE.** No. LA 427-16. 43 frames, color. Earth as a member of our galaxy, the nature and number of galaxies, light-years, and an analysis of earth motion. \$6. (U)

Your Lesson Plan Filmstrips, 1319 Vine St., Philadelphia 7, Pa.

**DESTINATION MOON.** 52 frames, color. The conquest of the air and the obstacles to be overcome to reach the moon. \$6; rental, \$1.50. (I-U)

**ENERGY FROM JETS AND ROCKETS.** 50 frames, color. Explains the principles of jet and rocket engines, how they differ; shows the relatively few parts of the jet engine in operation. \$6; rental, \$1.50. (U)

## INDEX TO AUTHORS

- Adams, Frank Davis, editor, 9  
 Adler, Irving, 1, 4, 7  
 Ames, Gerald—jt. author, *see* Wyler, 5  
 Ames, Maurice U.—jt. author, *see* Schneider, 8  
 Anderson, Norman—jt. author, *see* Hynek, 4  
 Asimov, Isaac, 4, 6  
  
 Baker, Rachel, 4  
 Barr, Jene, 7  
 Beeland, Lee, 1  
 Bendick, Jeanne, 1  
 Bergaust, Erik, 1  
 Bernardo, James V., 8  
 Bonsall, George, 7  
 Branley, Franklyn M., 1, 4, 6  
 Burt, Olive, 1  
  
 Caidin, Martin, 1  
 Campbell, Ethel M., 7  
 Chamberlain, Joseph M., 4  
 Chapel, Charles E., coeditor, 9  
 Chester, Michael, 1—jt. author, *see* Nephew, 2, 3  
 Clason, Clyde B., 1  
 Coggins, Jack, 1  
 Cooke, David C., 8  
 Coombs, Charles, 1  
 Cox, Donald, 1, 4  
 Crosby, Alexander, 1  
 Crosby, Phoebe, 4  
  
 Deason, Hilary J., editor, 9  
 Del Ray, Lester, 1  
 Dietz, David, 6  
  
 Egan, Philip, 1  
 Emme, Eugene M., 9  
  
 Feravolo, Rocco V., 8  
 Floherty, John J., 8  
 Forrester, Frank, 7  
 Freeman, Mae, 2, 4  
 Freeman, Ira—jt. author, *see* Mac Freeman, 2, 4  
  
 Gallant, Roy A., 4  
 Gentle, Ernest J., coeditor, 9  
 Gibson, Gertrude H., 7  
 Gottlieb, William, 6, 8  
 Goudey, Alice E., 7  
 Greene, Carla, 2  
 Grey, Vivian, 4  
  
 Haggerty, James J., Jr., 2  
 Highland, Harold, 8  
 Hitte, Kathryn, 7  
  
 Holsaert, Eunice, 2  
 Hoss, Norman, 4  
 Hutchinson, William M., 2  
 Hyde, Margaret O., 2  
 Hyde, Wayne, 8  
 Hynek, Allen, 4  
  
 Johnson, Gaylord, 4  
  
 Kay, Terence, 2  
 King, Fred M., 2  
 Knight, Clayton, 6  
  
 Larrick, Nancy—jt. author, *see* Crosby, 1  
 Lauber, Patricia, 2, 4  
 Lawrence, Mortimer, 2  
 Leavitt, William, 2  
 Lederberg, Joshua—jt. author, *see* Moffat, 2  
 Lewellen, John, 2  
 Ley, Willy, 2, 7  
 Lynn, Robert, coeditor, *see* Deason, 9  
  
 Maloney, Terry, 4  
 Marshack, Alexander, 2  
 May, Julian, 2, 4  
 Mayall, M.—jt. author, *see* Olcott, 5  
 Mayall, R.—jt. author, *see* Olcott, 5  
 McGrady, Mike—jt. author, *see* Floherty, 8  
 McGrath, Thomas, 7  
 Merlen, Joanna Baker—jt. author, *see* Baker, 4  
 Moffat, Samuel, 2  
 Moore, Patrick, 5  
 Munch, Theodore W., 5, 6  
 Myrus, Don, 2  
  
 Nephew, William, 2, 3  
 Neurath, Marie, 6, 7  
 Newell, Homer E., 3, 6  
 Nicholson, Thomas D.—jt. author, *see* Chamberlain, 4  
  
 Odishaw, Hugh, 3  
 Olcott, W. T., 5  
  
 Page, Lou Williams, 5  
 Parker, Bertha Morris, 3, 5, 6  
 Podendorf, Illa, 3  
 Poole, Lynn, 8  
 Poole, Gray—jt. author, *see* Lynn Poole, 8  
 Posin, Daniel Q., 5  
 Pratt, Fletcher, 6—jt. author, *see* Coggins, 1

Reed, W. Maxwell, 5  
 Rosen, Sidney, 3  
 Ruchlis, Hy, 3  
 Russell, M. E.—jt. author, *see* Yates, 3

Schloat, G. Warren, 5  
 Schneider, Leo, 3, 8  
 Shane, Harold, 5  
 Sharp, Elizabeth N., 6  
 Shelton, William Roy, 3  
 Solbert, Ronni—jt. author, *see* Holsaert, 2  
 Spar, Jerome, 7  
 Spielberg, Kurt:  
     jt. author, *see* Hutchinson, 2  
     jt. author, *see* Sutherland, 3  
 Sternig, J., 5  
 Stevens, Robley D., 3  
 Stillman, Myra—jt. author, *see* Tannenbaum, Beulah, 5  
 Stillman, Nathan—jt. author, *see* Tannenbaum, Harold,  
     3, 6, 8  
 Stoiko, Michael—jt. author, *see* Cox, 1, 4

Sutherland, Lucille, 3  
 Syrocki, B. John, 7

Tannenbaum, Beulah, 5  
 Tannenbaum, Harold E., 3, 6, 8  
 Taylor, John W. R., 6  
 Tellander, Marian, 5  
 Thomas, A. Eleanor, 7  
 Thomas, Henry, 8  
 Throneburg, James, 3  
  
 Wells, Robert, 3—jt. author, *see* Beeland, 1  
 Welmers, Everett T., 3  
 White, W. B., 5  
 Wolfe, Louis, 7  
 Woodburn, John H.—jt. author, *see* Haggerty, 2  
 Wyler, Rose, 5  
  
 Yates, Raymond, 3  
  
 Zim, Herbert S., 5

## INDEX OF TITLES

- AAAS SCIENCE BOOK LIST, THE, 9  
 ABOUT OUR WEATHER, 7  
 AERONAUTICAL DICTIONARY, 9  
 AERONAUTICS AND ASTRONAUTICS 1915-60, 9  
 AIRCRAFT AND HOW THEY WORK, 8  
 AIRPLANES AND HOW THEY FLY, 8  
 ALL ABOUT ROCKETS AND JETS, 6  
 ALL ABOUT SATELLITES AND SPACE SHIPS, 6  
 ALL ABOUT THE PLANETS, 4  
 AMERICA'S FIRST WOMAN ASTRONOMER: MARIA MITCHELL, 4  
 ANDY'S WONDERFUL TELESCOPE, 5  
 ASTRONAUTS: THE TRUE STORY OF MAN'S GREATEST ADVENTURE IN OUTER SPACE, THE, 2  
 AVIATION AND SPACE DICTIONARY, 9  
 AVIATION IN THE MODERN WORLD, 8  
  
 BALLOONS FLY HIGH, 8  
 BEGINNER'S BOOK OF ASTRONOMY, 5  
 BETWEEN EARTH AND SKY, 7  
 BEYOND MARS, 2  
 BOOK OF MOON ROCKETS FOR YOU, A, 1  
 BOOK OF SATELLITES FOR YOU, A, 6  
 BOYS' BOOK OF ASTRONOMY, THE, 5  
 BY SPACE SHIP TO THE MOON, 1  
  
 CLOCK WE LIVE ON, THE, 4  
 CLOUDS, 7  
 COUNTDOWN: THE STORY OF CAPE CANAVERAL, 3  
  
 DAN THE WEATHERMAN, 7  
 DAY WE SAW THE SUN COME UP, THE, 7  
 DIPPER FULL OF STARS, A, 5  
  
 EARTH AND SPACE, 3  
 EXPLORING EARTH AND SPACE, 2  
 EXPLORING THE AIR OCEAN, 7  
 EXPLORING THE PLANETS, 4  
 EXPLORING THE SUN, 4  
  
 FIELD BOOK OF THE SKIES, 5  
 FIRST BOOK OF ASTRONOMY, THE, 4  
 FIRST BOOK OF SPACE TRAVEL, THE, 1  
 FLIGHT THAT MADE HISTORY, 8  
  
 GALILEO AND THE MAGIC NUMBERS, 3  
 GIANT GOLDEN BOOK OF ASTRONOMY, THE, 5  
 GUIDE TO OUTER SPACE, 1  
 GUIDE TO ROCKETS, MISSILES, AND SATELLITES, 6  
  
 HOW AND WHY WONDER BOOK OF FLIGHT, THE, 8  
 HOW AND WHY WONDER BOOK OF ROCKETS AND MISSILES, THE, 6  
  
 HOW AND WHY WONDER BOOK OF STARS, THE, 4  
 HOW AND WHY WONDER BOOK OF WEATHER, THE, 7  
 HURRICANES, TORNADOES AND BLIZZARDS, 7  
  
 I WANT TO BE A SPACE PILOT, 2  
 INEXPENSIVE SCIENCE LIBRARY, AN, 9  
 INTRODUCTION TO SPACE, 4  
  
 JET AND ROCKET PLANES THAT MADE HISTORY, 8  
 JETS AND ROCKETS AND HOW THEY WORK, 6  
 JUNIOR SCIENCE BOOK OF FLYING, 8  
 JUNIOR SCIENCE BOOK OF STARS, 4  
  
 LET'S GO TO A ROCKET BASE, 1  
 LET'S GO TO A WEATHER STATION, 7  
  
 MAN AND WEATHER SATELLITES, 7  
 MAN IN SPACE, 2  
 MAN IN THE UNIVERSE, 4  
 MAN-MADE MOONS (ADLER), 1  
 MAN-MADE MOONS (NEURATH), 6  
 MAN ON THE MOON: OUR FUTURE IN SPACE, 3  
 MARS AND BEYOND, 2  
 MEN, PLANETS AND STARS, 1  
 MOON BASE, 2  
 MOON: EARTH'S NATURAL SATELLITE, THE, 4  
 MOON SEEMS TO CHANGE, THE, 4  
 MOON TRIP, 2  
  
 NEIGHBORS IN SPACE, 5  
 NINE PLANETS: EXPLORING OUR UNIVERSE, THE, 4  
  
 OFF INTO SPACE!, 2  
 ORBIT, 3  
 OUTER SPACE, 2  
  
 PLANET TRIP,, 3  
 PLANETS, STARS, AND SPACE, 4  
 PROBING THE ATMOSPHERE: THE STORY OF METEOROLOGY, 7  
 PROJECT MERCURY (COOMBS), 1  
 PROJECT MERCURY (HAGGERTY), 2  
  
 QUEST OF GALILEO, THE, 2  
  
 ROCKET AIRCRAFT, USA, 1  
 ROCKETRY THROUGH THE AGES, 1  
 ROCKETS AND HOW THEY WORK, 6  
 ROCKETS AND JETS, 6  
 ROCKETS AND MISSILES, 6  
 ROCKETS AND SATELLITES WORK LIKE THIS, 6  
 ROCKETS INTO SPACE, 1  
 ROCKETS, MISSILES, AND SATELLITES, 6

ROCKETS' RED GLARE, THE, 2  
 ROCKETS, SATELLITES AND SPACE TRAVEL, 1  
 ROCKETS THROUGH SPACE, 1  
 ROCKETS TO THE MOON, 1

SATELLITES AND SPACE TRAVEL, 3  
 SATELLITES IN OUTER SPACE, 6  
 SCIENCE BOOK-LAB OF JET ENGINES, THE, 6  
 SHOOTING STARS, 5  
 SHOW ME THE WORLD OF ASTRONOMY, 4  
 SHOW ME THE WORLD OF SPACE TRAVEL, 2  
 SKY ABOVE US, THE, 5  
 SOLAR SYSTEM, THE, 5  
 SPACE, 5  
 SPACE BIOLOGY, 2  
 SPACE BOOK FOR YOUNG PEOPLE, 3  
 SPACE FLIGHT, 1  
 SPACE FOR EVERYONE, 1  
 SPACE FRONTIER, THE, 2  
 SPACE IN YOUR FUTURE, 3  
 SPACE MONKEY: THE TRUE STORY OF MISS BAKER 1  
 SPACE ROCKETS AND MISSILES, 3  
 SPACE SATELLITE, 1  
 SPACE SCIENCE SERVES MAN, 3  
 SPACE STATIONS, 2  
 SPACE TRAVEL (HUTCHISON AND SPIELBERG), 2  
 SPACE TRAVEL (LEY), 2  
 SPACE TRAVEL (SUTHERLAND AND SPIELBERG), 3  
 SPACE TRAVEL GUIDEBOOK, 3  
 SPACE VOLUNTEERS, 2  
 SPACECRAFT, 2  
 STARS FOR SAM, THE, 5  
 STATIONS IN SPACE, 1  
 STORY OF PLANETS, SPACE AND STARS, THE, 4  
 STORY OF THE STARS, THE, 4

SUN AND ITS FAMILY, THE, 4  
 SUN, THE MOON, AND THE STARS, THE, 4  
 THRUST INTO SPACE, 3  
 TOMORROW THE MOON, 2  
 TRAVELING ELEMENTARY SCHOOL SCIENCE LIBRARY,  
 THE, 9  
 TRUE BOOK OF SPACE, THE, 3  
 UNDERSTANDING TIME, 5  
 U.S. AIRCRAFT, MISSILES, AND SPACECRAFT, 8  
 UNIVERSE, THE, 5  
 WAY OF THE WEATHER, THE, 7  
 WEATHER, 7  
 WEATHER IN YOUR LIFE, 7  
 WHAT DOES AN ASTRONAUT DO?, 3  
 WHAT DOES A PARACHUTIST DO?, 8  
 WHAT IS A ROCKET, 6  
 WHAT IS A SOLAR SYSTEM, 5  
 WHAT IS A STAR, 5  
 WHAT IS GRAVITY, 2  
 WHAT IS WEATHER, 7  
 WHIRLING WINGS, 8  
 WHO'S WHO IN WORLD AVIATION AND ASTRONAUTICS, 9  
 WIND—NATURE'S GREAT VOICE, THE, 7  
 WINDOW IN THE SKY, 3  
 WINGS IN YOUR FUTURE, 8  
 WORLD IN SPACE, THE, 2  
 WRIGHT BROTHERS, THE, 8  
 X-15: MAN'S DARING FLIGHT INTO SPACE, 1  
 YOU AND SPACE TRAVEL, 2  
 YOU WILL GO TO THE MOON, 2

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